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ARMY COMMUNICATIONS COMMAND FORT HUACHUCA ARIZ  
STANDARD ENGINEERING INSTALLATION PACKAGE. AUTOVON PRECEDENCE N--ETC(U)  
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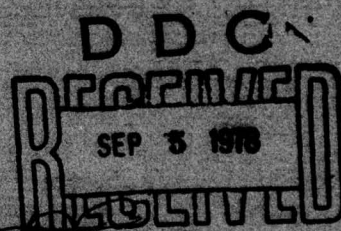
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VOICE OF THE ARMY

# STANDARD ENGINEERING INSTALLATION PACKAGE

## AUTOVON PRECEDENCE NETWORK IN DIAL (PNID) MODIFICATION

1 JULY 1978



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HEADQUARTERS  
U. S. ARMY COMMUNICATIONS COMMAND  
FORT HUACHUCA, ARIZONA 85613

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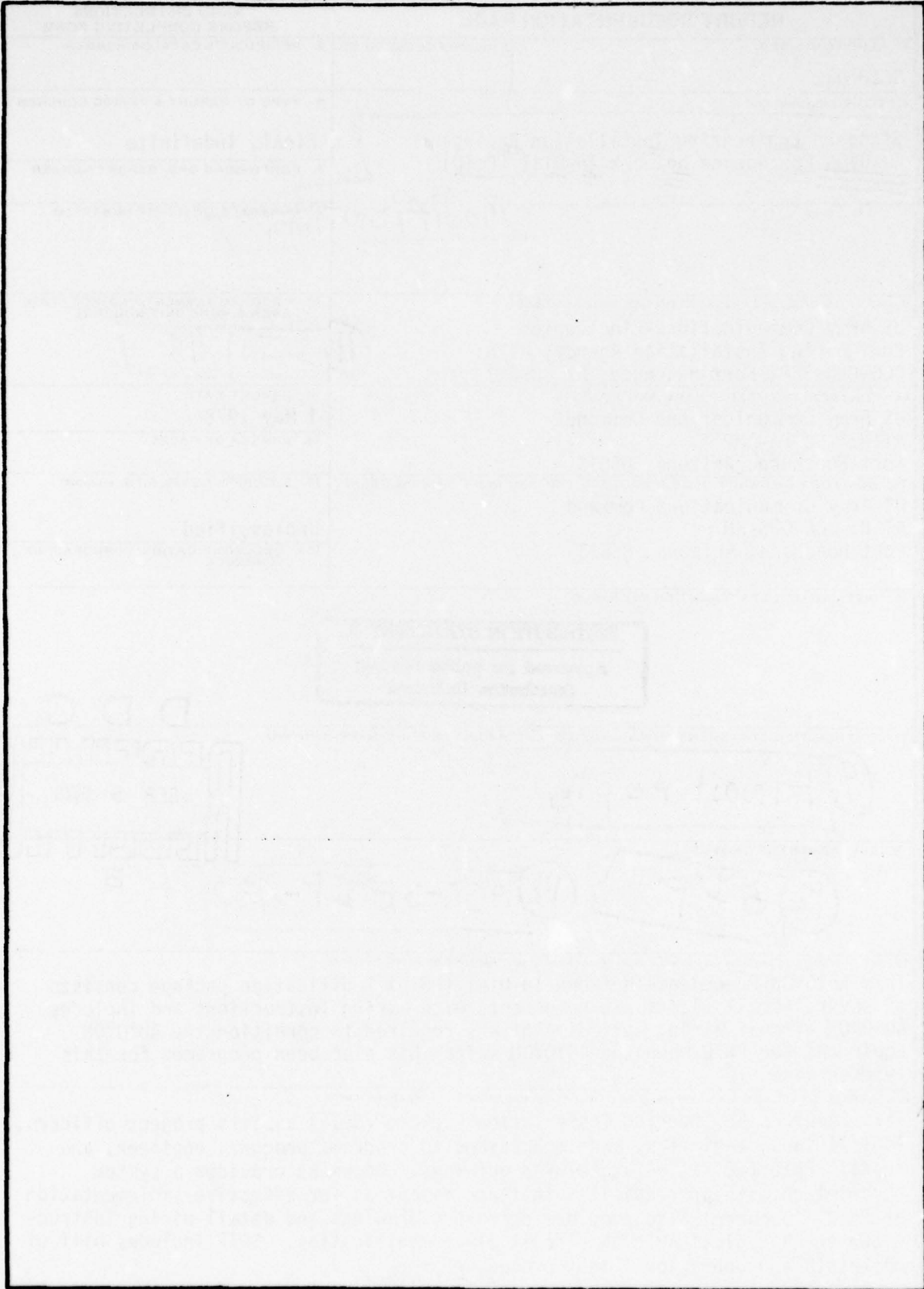
#### NEUTRAL LANGUAGE

The word "he" when used in this publication represents both the masculine and feminine genders, unless specifically stated.

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) This AUTOVON Precedence Network In-Dial (PNID) Modification package consists of several small electronic components with wiring instructions and includes AUTOVON circuit wiring options that are required to condition the AUTOVON equipment for PNID when the AUTOVON switch has also been programed for this type service.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This Standard Engineering Installation Package (SEIP) assists project officers, logisticians, engineers, and technicians to program, procure, engineer, and install PNID facilities at AUTOVON gateways. Document provides a system description with prerequisites that are essential for effective implementation of PNID. Document also provides necessary drawings and detail wiring instructions for a typical AUTOVON circuit plate modification. SEIP includes bill of materials and operational test procedure.		



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DEPARTMENT OF THE ARMY  
HEADQUARTERS, US ARMY COMMUNICATIONS COMMAND  
Fort Huachuca, Arizona 85613

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No. 032

1 July 1978

Standard Engineering Installation Package  
AUTOVON PRECEDENCE NETWORK IN DIAL (PNID) MODIFICATION

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## SECTION 1. GENERAL

1.1 BACKGROUND. The United States Army Communications-Electronics Engineering Agency (USACEEIA) is responsible for the engineering and installation of automatic voice network (AUTOVON) equipment in support of worldwide voice communications for the Department of the Army (DA). This Standard Engineering Installation Package (SEIP) depicts requirements for a typical AUTOVON precedence network in dial (PNID) modification. This modification consists of two circuit plates, including the installation of the operator flash and recall applique, using Automatic Electric Company (AECO) Circuit H-75650A. PNID AUTOVON service has been available only in the Continental United States (CONUS) AUTOVON. Restrictions, now rectified, in the common control logic of the overseas AUTOVON switches had prevented implementation of PNID service. TM-5805-482-15-5, Overseas AUTOVON Interface Components, contains guidance on circuits and equipment applicable to subject modification. This document has been prepared primarily for application at DA overseas sites; but, it also can be applied to AUTOVON facilities throughout the DA and other Department of Defense activities as required.

1.2 SYSTEM DESCRIPTION. This modification is the solution to the shortcomings of immediate network in dial (INID) normally used in overseas installations. The INID diverts all precedence calls above routine to an operator. This action results in non-productive holding time which in turn seriously impacts on the overall grade of service and further delays the call. With PNID, precedence calls are routed by the AUTOVON switch directly to the called subscriber. Only if the called station is busy or does not answer in a specified time will precedence calls above routine be diverted to the private branch exchange (PBX) operator.

### 1.3 SYSTEMS MODIFICATION PREREQUISITES.

1.3.1 AUTOVON switch. Appropriate tasking, including the submission of telecommunications service requests, must be coordinated with all concerned activities. The AUTOVON switch must be reprogrammed to make it compatible with PNID-equipped AUTOVON trunks. Cutover of the PNID circuits and reprogramming of the AUTOVON switch must be concurrent. Telephone facilities equipped with AUTOVON service should refer to DCAC 310-V175-2, Network Dial Service Criteria General-Purpose AUTOVON; it is anticipated that all PBX/private automatic branch exchange (PABX) facilities will be equipped with PNID after 1981.



1.3.2 Telephone central office switch train. Central offices selected for PNID modification will be examined for availability of digit-absorbing incoming selectors that should be wired to their respective AUTOVON circuit. PNID is provided by changing a bit in the AUTOVON switch memory to permit outputting of both the P (precedence) and the R (route) digit to the PBX to absorb the R digit when received. The number format in this case is P + R + address. R would normally be the digit 0.

#### 1.4 LIST OF APPLICABLE DOCUMENTS.

##### a. Government documents.

###### Manuals

TM 11-5805-482-15-5

Operator's Organizational,  
Direct Support, General Support,  
and Depot Maintenance Manual  
including Repair Parts and  
Special Tools Lists: Overseas  
AUTOVON Interface Components:  
Two-way PABX Preemptible  
Interface Trunk Circuit with Pad  
Control and Pulse Correction  
(AUTELCO Part No.  
DH-75650-702A); Universal Cord  
Applique for Two-Way PABX  
Preemptible Interface Trunk  
Circuits (AUTELCO Part No.  
DH-75650-A77A and  
DH-75650-711A); H75650 Trunk  
Circuit Adapter for AUTELCO SYST  
1000/2, M819/427-A1; H75650  
Trunk Circuit Adapter for  
(AUTELCO SYST 1000/1,  
M819/427-A2; H75650 Trunk  
Circuit Adapter for Siemens RP40  
SWBD, M819/427-B; H75650 Trunk  
Circuit Adapter for Siemens PABX  
EMD SWBD, M819/427-H; H75650  
Trunk Circuit Adapter for  
Telenorma SWDB, M819/427-K  
H75650 Trunk Circuit Adapter for  
Siemens-Eisenbahn System,  
M819/427-N; Two-Way PABX  
Preemptible Interface Trunk  
Equipment (AUTELCO Part No.  
DH-75650-710A); H75650 Trunk

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Circuit Adapter for British Post Office No. 3 System, Part No. M189/427-C; H75650 Trunk Circuit Adapter for Cordless Siemens BASA/60 Volt System, Part No. 654-132-01 and 654-132-02, changes 1-4.

CCTM 105-50-21

Telecommunications Engineering-  
Installation Practices,  
Installation-General

#### Regulations

CCR 702-1-2

USACC Quality Assurance Program  
for Engineering, Installation,  
and Acceptance of Communications-  
Electronics Equipment and Systems

CCCR 34-2

Preparation of Engineering  
Installation Packages and  
Standard Engineering Installation  
Packages

CCCR 702-1

USACEEIA Quality Assurance and  
Testing Program

CCCR 702-2

Preparation of Documentation for  
Test and Evaluation of  
Communications- Electronics  
Material

CCCR 702-3

Role of the Test Director

#### Circulars

DCAC 370-160-3

Site Survey Data Book for  
Communication Facilities

DCAC 310-V175-2

Network Dial Service Criteria,  
General-Purpose AUTOVON

DCAC 370-V175-6

AUTOVON System Interface  
Criteria

TO 31-10 Series

Standard Installation Practices



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b. Non-Government documents.

E75650-A

Automatic Electric Company,  
Circuit Explanation 2-way  
Interface Trunk Circuit,  
with PRECEDENCE, PRE-EMPTION,  
NID, NOD, Operator-Recall  
Outgoing Pulse Correction, E&M  
Signaling

H75650-A

Automatic Electric Company,  
Circuit Explanation 2-way  
Interface Trunk Circuit,  
with PRECEDENCE, PRE-EMPTION,  
NID, NOD, Operator-Recall  
Outgoing Pulse Correction, E&M  
Signaling

1.5 COMMENTS ON PUBLICATION.

a. Users of this publication are invited to submit recommendations for its improvement. Comments should be keyed to the drawing, page, paragraph, and line of the text for which the change is recommended. For convenience, a mailing card is bound with this SEIP. Comments should be sent directly to the Commander, Headquarters (HQ), USACEEIA, ATTN: CCC-CED-SEP, Fort Huachuca, Arizona 85613.

b. Requests for USACEEIA regulations and forms should be addressed to the Commander, HQ, USACEEIA, ATTN: CCC-SPT-RM, Fort Huachuca, Arizona 85613.

SECTION 2. SITE SURVEY DATA AND CHECKLIST

2.1 GENERAL. This section provides the information necessary to accomplish preliminary engineering, equipment layout, and arrangements pertinent to modification and/or installation of AUTOVON PNID. Site surveys may not be required, provided adequate central office drawings are available at the responsible area electronics engineering installation agency.

2.2 SITE SURVEY CRITERIA. The site survey should be conducted in accordance with applicable portions of CCCR 34-2, Preparation of Engineering Installation Packages and Standard Engineering Installation Packages, and criteria set forth in DCAC 370-160-3, Site Survey Data Book for Communication Facilities.

2.3 EQUIPMENT CHARACTERISTICS. This data should be provided only when installation of additional completely-equipped relay racks is required.



### SECTION 3. INSTALLATION SPECIFICATIONS AND INSTRUCTIONS

3.1 INTRODUCTION. The instructions outlined in this section provide standard engineering and installation guidance for the modification and/or installation of AUTOVON equipment. Instructions herein are typical to modification of AUTOVON circuits for conversion to PNID. Information on equipment that may be used in Europe has also been included. NOTE: In Europe, the use of an additional 60-48 V dc/dc converter will be as required on a case-by-case basis.

3.2 GENERAL INSTRUCTIONS. The equipment will be installed in accordance with established criteria, the engineering drawings and instructions, and referenced drawings and publications deemed necessary by the responsible engineering activity. Installation personnel must be familiar with CCTM 105-50-21, Telecommunications Engineering installation Practices, Installation-General, to ensure that the facility is installed in accordance with standard procedures.

3.2.1 Cabling shall be in accordance with CCTM 105-50-21.

3.2.2 All cables shall be tagged using bill of materials (BOM) item 16 in accordance with CCTM 105-50-21.

3.2.3 Cable runs shall be measured to ensure sufficient cable is cut.

3.2.4 Equipment and terminal blocks shall be stenciled in accordance with CCTM 105-50-21.

3.2.5. Materials listed in the BOM not specifically identified in this document are to be used at the discretion of the team chief.

3.2.6 Installations requiring tie cables from one relay rack to another will terminate these cables on the terminal blocks on each rack. The type of terminal blocks required and necessary cable will be added to the BOM on a case by case basis.

3.3 DETAIL INSTRUCTIONS. Instructions are in reference to drawing STD-TL-0001, sheet 1 or sheet 2. However, to preclude repetition of drawing number, only the sheet number will be called out when applicable.

3.3.1 Installation of equipment when relay rack space is available.

3.3.1.1 Install two PNID appliques, two circuits per applique.

3.3.1.2 Install two operator flash and recall appliques.

3.3.1.3 Cable and place PNID and operator recall appliques into service.

3.3.2 Install one or two relay racks, as required, using BOM item 14 (see drawing sheet 1).

3.3.3 Install voltage converter, when required. Also install fuse panel and PNID appliques in relay rack 2 in accordance with drawing sheet 1, using BOM items 2, 17, 18, and 19.

3.3.4 Run power wiring to voltage converter and fuse panel, using BOM items 8, 12, and 13.

3.3.5 Run multiple fuse alarm lead from supervisory terminal block of relay rack 2 to adjacent rack using BOM item 1. Connect converter failure alarm leads to CF and CF1 of supervisory terminal block using BOM item 5. Connect CF1 to -MB, and CF to the fuse alarm lead (refer to figure 3F of drawing sheet 2).

3.3.6 Run power to PNID appliques from the fuse panel, using BOM items 8, 12, and 13.

3.3.7 Refer to drawing sheet 1, figure 2, and sheet 2, figure 4, for installation of cable runs. For cable runs J-12 and J-14, use BOM item 9; for J-13, use BOM item 10; and for J-15, use BOM item 28. Terminate cables in accordance with drawing sheet 2, figures 3A, 3B, and 3E. (NOTE: Manufacturer's drawing reference data.) The PNID applique for these cable runs is connected directly to the corresponding AUTOVON trunk circuit in relay rack 1. (See 3.7.1 and 3.7.2 for further details.)

3.3.8 After completion of the actions indicated in 3.3.1 through 3.3.7, perform the following wiring modifications to the circuit plates:

3.3.8.1 Install relay GT 23343C11, using BOM item 21, in circuit H-75650-A39A, Part No. DH 75650-708A, in relay rack 2, in accordance with proper installation procedures, utilizing screws and insulator wafer. Designate this relay "OPCO." Refer to drawing sheet 2, figure 5.

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3.3.8.2 Connect and solder anode of diode CR1, using BOM item 20, to contract 1, top of relay OPCO.

3.3.8.3 Connect and solder anode of diode CR2, using BOM item 20, to contact 1, bottom of relay OPCO.

3.3.8.4 Connect cathode of diodes CR1 and CR2 to contact 5, top of relay OPCO.

3.3.8.5 Connect varistor, VR-1, BOM item 29, across the winding of relay OPCO (terminals 101 and 102).

3.3.8.6 Connect a green wire, BOM item 26, from contact 6, top of relay OPCO, to terminal 101 of relay OPCO.

3.3.8.7 Locate and remove the designated wires from the terminal block, where the switch board equipment is connected to the applique, to the tie points specified (see figure 3 of sheet 1).

3.3.8.8 Foreign adapters:

From terminal block

To tie point

J4

Relay JP Contact 2B

J8

Relay JP Contact 6B and  
Contact 2 of Busy Key

3.3.8.9 CONUS appliques:

From terminal block

To tie point

K1

Relay JP Contact 2B

K

Relay JP Contact 6B and  
CR49 and CR28

3.3.8.10 In H-7560-A, figure 1A, in relay rack 1, relocate and unwrap or unsolder wires on contact 8, bottom of relay P3.

3.3.8.11 Remove 0.25 inch of the insulation from the end of the wires in sufficient length to cover 1.5 inches. Splice and solder cathode of Diode CR3, BOM item 20, to wires, and then slide sleeving, BOM item 24, over splice to ensure proper insulation.

3.3.8.12 Connect anode of diode CR3 to contact 8, bottom of relay P3.



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3.3.8.13 Connect a green wire, BOM item 26, from contact 8, bottom of relay P3, CKT H-75650A, figure 1A, to contact 6, top of relay OPCO, CKT DH-75650-708A.

3.3.8.14 Connect a green wire, BOM item 26, from contact 1, top of relay OPCO, CKT DH-75650-708A, to pin of terminal block designated K1 or J4.

3.3.8.15 Connect a green wire, BOM item 26, from contact 1, bottom of relay OPCO, CKT DH-75650-708A, to pin of terminal block designated K or JR.

3.3.8.16 Connect a green wire, BOM item 26, from contact 2, top of relay OPCO, CKT DH-75650-708A, to relay ON3 contact 2, or relay JP contact, depending on type of applique used. (See 3.4 and 3.5.)

3.3.8.17 Connect a green wire, BOM item 26, from contact 2, bottom of relay OPCO, CKT DH-75650-708A, to relay JP contact 6, bottom of relay JP contact, depending on type of applique used. (See 3.4 and 3.5.)

3.3.8.18 Connect a blue wire, BOM item 27, from terminal 102 of relay OPCO to terminal block of CKT DH-75650-708A, row 15, terminal 10 (-MB).

3.3.8.19 On timer T2 of H-75650-A, figure 1A, remove the start lead from pin 4 and connect to pin 5.

3.3.8.20 Connect a 1-meg-ohm 1/2-watt resistor, BOM item 25, across pins 4 and 5 of timer T2. This will allow a minimum of 5 rings to the called party before transfer to attendant occurs.

#### 3.4 MISCELLANEOUS UNITS WITH DIFFERENT "K" LEAD DESIGNATIONS.

The following switchboard applique units have the lead designated K for its figures JK1, and K1 for its figure JK2, which are the leads associated with this modification:

3.4.1 Automatic Electric, Universal Board Applique, Part No. DH-75650A-A77A.

3.4.2 Automatic Electric, Toll Board Applique, Part No. DH-75650-A79A.

3.4.3 Kellogg 47471, Applique Control Unit.

3.4.4 Western Electric Company (WECO), Applique Circuit, Part No. SD66720-01.

3.4.5 North Electric, Applique Circuit, Part No. NC8062.

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3.5 MISCELLANEOUS UNITS WITH DIFFERENT "J" LEAD DESIGNATIONS.

The following board applique units have the lead designated J8 for an equivalent figure JK1, and J4 for an equivalent figure JK2, which are the leads associated with this modification:

3.5.1 AUTELCO GTE, Trunk Adapter, Part No. M819/427A1 for AUTELCO System 1000/2.

3.5.2 Part No. M819/427B for Siemens RP40.

3.5.3 Part No. M819/427C for No. 3 British Post Office.

3.5.4 Part No. M819/427C for Phillips PABX.

3.5.5 Part No. M819/427E for Rotary 7D.

3.5.6 Part No. M819/427F for Siemens NEHA.

3.5.7 Part No. M819/427H for Siemens EMD.

3.5.8 Part No. M819/427J for Cordless Milan.

3.5.9 Part No. M819/42K for different models of above.

3.6 INSTALLATION COORDINATION. Installation of the PNID applique must be coordinated so that the PNID cut-in and AUTOVON switch reprogramming is accomplished simultaneously, so as to comply with DCAC 370-V175-6, AUTOVON System Interface Criteria.

3.6.1 It is recommended that only one trunk at a time be converted to PNID, and then tested before proceeding to the next trunk.

3.6.2 Inspections and testing shall be performed in accordance with section 7.

#### SECTION 4. ENGINEERING INSTALLATION DRAWINGS

4.1 GENERAL. This SEIP contains only the engineering installation drawings necessary for the modification of an AUTOVON circuit plate, Automatic Electric Company, No. H-75650-A for PNID. The manufacturer's drawing should be used by engineering activities preparing engineering installation packages (EIP) for specific sites.

4.2 MODIFICATION OF INSTALLATION DRAWINGS. The engineering drawings may be modified during and after installation of a project to reflect changes to the circuit plates and associated equipment. Circuit plates modified for PNID will be so marked. Copies of modified drawings should be retained at each site and changes, corrections, and deletions forwarded to the responsible area electronics engineering installation agency.

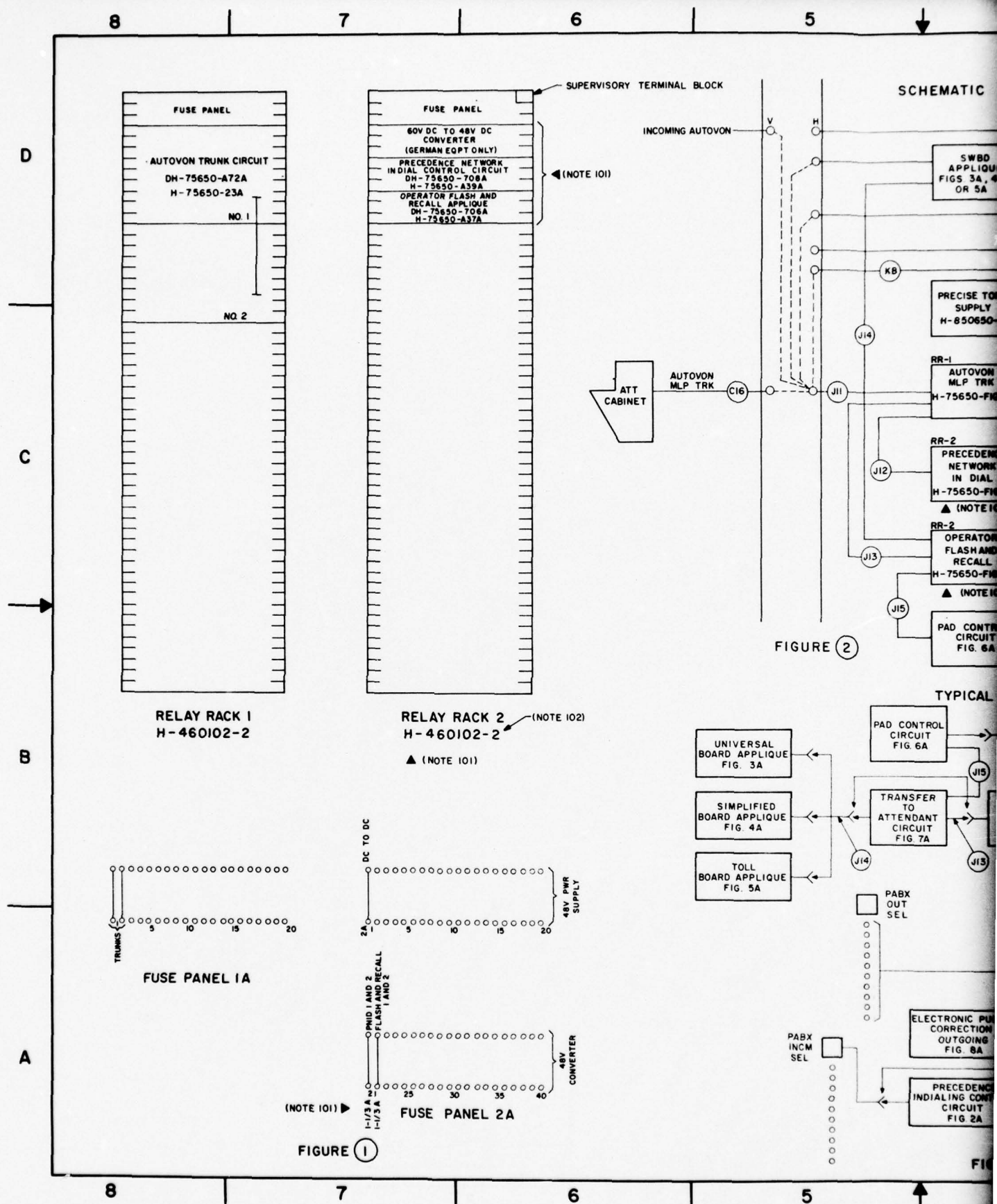
4.2.1 US Army Communications-Electronics Engineering Installation Agency drawings. The engineering installation drawings indicated herein depict the key points and terminations of the equipment for cabling additional equipment and modifying the circuit plates. Reference material may be found in section 1. Description and application of drawings are as follows:

4.2.1.1 STD-TL-0001, Sheet 1, AUTOVON Precedence Network In Dial (PNID) Schematic/Relay Rack.

4.2.1.2 STD-TL-0001, Sheet 2, AUTOVON Precedence Network In Dial (PNID) Terminal Block Design and Cabling List.

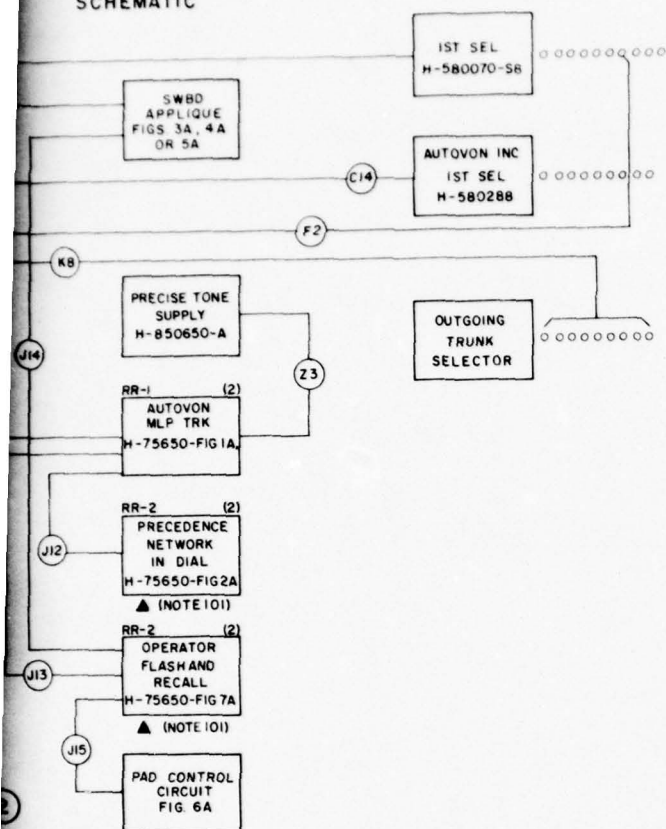
NOTE: Figure numbers for these drawings are shown within a bubble; e.g., ①. Reference to figure numbers on manufacturer's drawings is shown without a bubble.





# SCHEMATIC

REVISION				
ZONE	REV	DESCRIPTION	DATE	APPROVED



## NOTES:

101. ▲ INDICATES EQUIPMENT INSTALLED THIS TASK.
102. SEE DRAWING AECO H-884779 FOR ORDERING INFORMATION.
103. FIGURE NUMBER WITH BUBBLE RELATES TO THESE DRAWINGS.
104. FIGURE NUMBER WITHOUT BUBBLE RELATES TO MANUFACTURER'S PRINT.

## TYPICAL CIRCUIT ARRANGEMENT H-75650-A (NOTE 104)

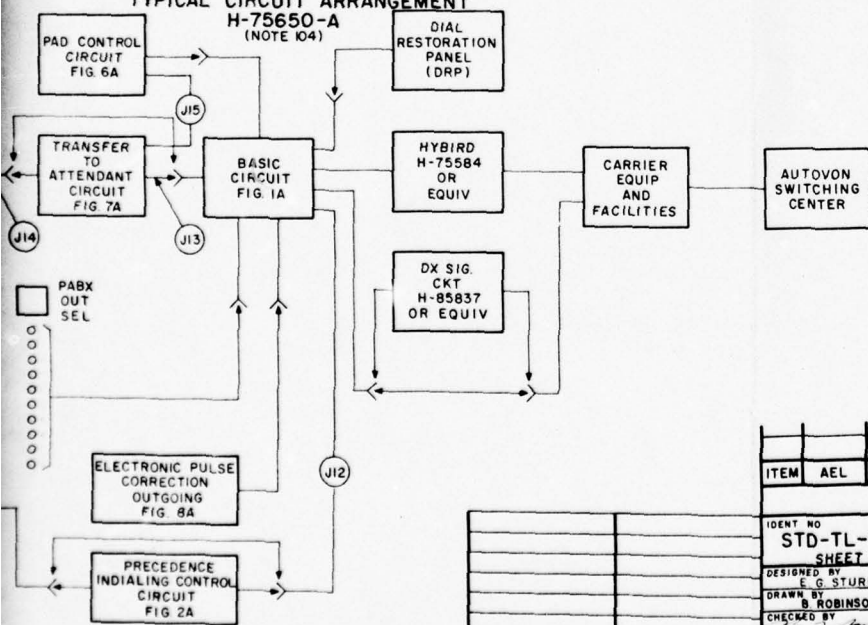


FIGURE ③

ITEM	AEL	DESCRIPTION	NSN	UI	QTY
LIST OF MATERIALS					
IDENT NO		ORGANIZATION			
STD-TL-0001		U S ARMY COMMUNICATIONS-ELECTRONICS			
SHEET 1 OF 2		ENGINEERING INSTALLATION AGENCY			
DESIGNED BY		DATE		AUTOVON	
E G STURM		30 MAR 78		PRECEDENCE NETWORK IN DIAL (PNID) MOD	
DRAWN BY		DATE		SCHEMATIC/RELAY RACK	
B ROBINSON		31 MAR 78			
CHECKED BY		DATE			
APPROVED BY		DATE			
DESIGN ACTIVITY		SIZE		DRAWING NO	
CCC-CED-SWT		D 50470			
NEXT ASSEMBLY		USED ON		SCALE	
				NONE	
DWG INDEX NO.				SHEET	
				OF	

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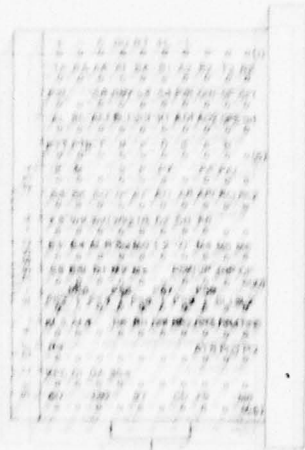


FIGURE (3A)  
TERMINAL BLOCK (10x15)  
(FIG. 1A, H-75650-A)  
(NOTE 201)



FIGURE (3B)  
TERMINAL BLOCK (9x19)  
(FIG. 1A, H-75650-A)  
(NOTE 201)

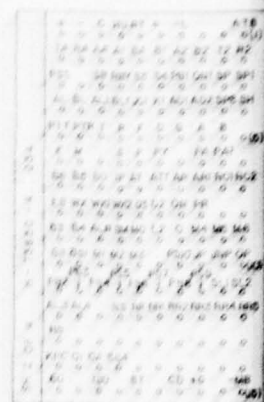


FIGURE (3C)  
TERMINAL BLOCK (10x15)  
(FIG. 1A, H-75650-A)  
(NOTES 201 & 202)

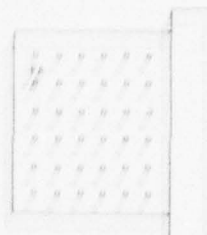


FIGURE (3D)  
SUPERVISORY TERMINAL BLOCK

DIAL EQUIPMENT												
FROM						TO						
CABLE NUMBER	LENGTH	WIRE CODE OR CABLE TYPE	FRAME OR VERT	LEVEL OR SHEET	ITEM OR BAY	EQUIPMENT	FRAME OR VERT	CR1 NO	EQUIPMENT	NOTES	LEAD DESIGNATIONS	
1-12		BOM # 9	RR-1			AUTOMON 10000 BAY	RR-2	1-2	FRIG		WR, WR1, WR2, CR1, CR2, CR3, CR4, CR5, CR6, CR7, CR8, CR9, CR10, CR11, CR12, CR13, CR14, CR15, CR16, CR17, CR18, CR19, CR20, CR21, CR22, CR23, CR24, CR25, CR26, CR27, CR28, CR29, CR30, CR31, CR32, CR33, CR34, CR35, CR36, CR37, CR38, CR39, CR40, CR41, CR42, CR43, CR44, CR45, CR46, CR47, CR48, CR49, CR50, CR51, CR52, CR53, CR54, CR55, CR56, CR57, CR58, CR59, CR60, CR61, CR62, CR63, CR64, CR65, CR66, CR67, CR68, CR69, CR70, CR71, CR72, CR73, CR74, CR75, CR76, CR77, CR78, CR79, CR80, CR81, CR82, CR83, CR84, CR85, CR86, CR87, CR88, CR89, CR90, CR91, CR92, CR93, CR94, CR95, CR96, CR97, CR98, CR99, CR100	
1-13	100 FT	BOM #10	RR-1			AUTOMON 10000 BAY	RR-2	1-2	OPR FL AND RCL		B4, B5, C, SM, RC1, AG1, RC2, SM 4 K, MC MC, MC5, M4, L2, 1201PM, SY AT	
1-14		BOM # 9	RR-2			OPR FL AND RCL			CR100		AT1, AR, AR1	
1-15		BOM # 20	RR-2			OPR FL AND RCL			CR100		SEE NOTE 206	
1-16		BOM # 20	RR-2			OPR FL AND RCL			CR100		SEE NOTE 206	

FIGURE (4)  
CABLE RUNNING LIST



FIGURE (5) (PARTIAL)

FIGURE (5) (PARTIAL)

FIGURE (5)  
COMPONENTS TO BE ADDED TO FIG 2A OF H-75650-A



REVISION			
ZONE	REV	DESCRIPTION	DATE
			APPROVED

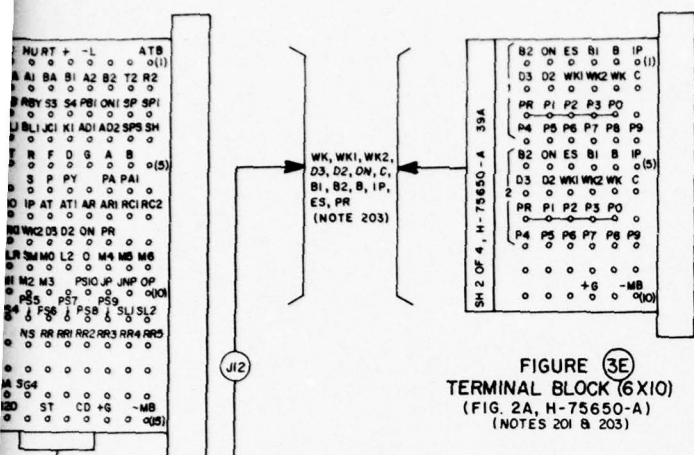


FIGURE 30  
TERMINAL BLOCK (10 X 15)  
(A, H-75650-A)  
(NOTES 201 & 203)

FIGURE 3E  
TERMINAL BLOCK (6 X 10)  
(FIG. 2A, H-75650-A)  
(NOTES 201 & 203)

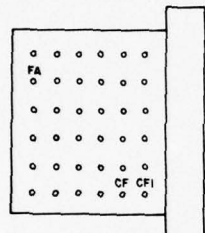


FIGURE 3F  
RELAY RACK  
SUPERVISORY TERMINAL BLOCK  
(NOTE 202)

### PNID STRAPPING CHART

- H-75650A WITHOUT NID  
FIGURE 2A
1. DISCONNECT AND INSULATE "IN" COIL WIRE AT WK RELAY.
  2. DISCONNECT AND INSULATE WIRE FROM SPG-6 OF DE RELAY.
- FIGURE 1A
1. REMOVE "B" STRAPS, PS-8 TO PS-9 AND SL-1 TO SL-2.
  2. INSTALL "A" STRAPS, PS-4 TO PS-5, PB-2 TO PB-3, MI TO WK AND JP TO JNP.
  3. DISCONNECT AND INSULATE WIRE AT SPG-6 OF INS RELAY.
  4. DISCONNECT AND INSULATE WIRE AT SPR-4B, OF P3-S RELAY.

FIGURE 3G  
(NOTE 201)

- H-75650A WITH NID  
FIGURE 2A
1. RETERMINATE "IN" COIL WIRE AT WK RELAY.
  2. RETERMINATE WIRE AT SPG-6 OF DE RELAY.
- FIGURE 1A
1. INSTALL "B" STRAPS, PS-8 TO PS-9 AND SL-1 TO SL-2.
  2. REMOVE "A" STRAPS, PS-4 TO PS-5, PB-2 TO PB-3, MI TO WK AND JP TO JNP.
  3. RETERMINATE WIRE AT SPG-6 OF INS RELAY.
  4. RETERMINATE WIRE AT SPG-4B OF P3-S RELAY.

FIGURE 3H  
(NOTE 201)

### NOTES :

201. ASSOCIATED DRAWING H-75650-A, ISS NUMBER 19. SEE NOTES 103 AND 104.
202. FIGURE 3F TERMINALS CF & CFI ARE FOR DC TO DC CONVERTER FAIL CONTACT CLOSURE.
203. FIGURE 1A TERMINAL      FIGURE 2A TERMINAL  
B5      B1  
B6      B  
B0      B2  
MI      C  
  
ALL OTHERS USE IDENTICAL DESIGNATIONS ON BOTH FIGURES.
204. FIGURE 1A TERMINAL      FIGURE 7A TERMINAL  
KI      K  
  
ALL OTHERS USE IDENTICAL DESIGNATIONS ON BOTH FIGURES.
205. REFER TO INSTRUCTIONS IN SECTION 3
206. FIGURE 3A, 4A OR 5A TERMINAL      FIGURE 7A TERMINAL  
B      B6  
ADI      ADI  
KI      K  
SA      SA  
SB      SB1  
AL1      A4  
AL2      A5  
AL3      A6  
JP      JPI  
JNP      JNPI
207. FIGURE 4A AND 5A TERMINAL      FIGURE 7A TERMINAL  
S3      S3  
S4      S4
208. FIGURE 7A TERMINAL      FIGURE 6A TERMINAL (IF USED)  
SG4      SG4
209. REQUIRES ONE CABLE PER CIRCUIT PLATE

### AUTOVON PRECEDENCE NETWORK IN DIAL (PNID) MOD TERMINAL BLOCK DESIGN AND CABLING LIST

IDENT NO STD-TL-0001	SIZE FSCN NO D 50470	DRAWING NO
DRAWN BY M BOLLACK	SCALE NONE	SHEET OF
APPROVED BY		

ENTERED IN CATALOGUE 1291

SECTION 5. BILL OF MATERIALS

5.1 GENERAL. The BOM provided herein, figure 5-1, illustrates the essential materials required for modification of an AUTOVON circuit for PNID. The BOM only provides guidance for a typical modification of two circuit plates. The relay rack and the 60-48 V dc/dc converter will only be ordered as required. BOM for CONUS stations should not reflect a requirement for a direct current converter. This item should only be required in overseas sites; e.g., West Germany. Activities preparing EIP's will adjust the BOM to reflect requirements for each respective site.

5.2 AUTHORIZED EQUIPMENT LIST. The BOM consists of materials current with the authorized equipment list (AEL) and publication of this document. Justified changes to the BOM will be submitted to Commander, HQ, USACEEIA for up-date action. Identification of items are primarily by AEL, identification number, and National Stock Number. When numbers are not available, the manufacturer's part description and number, or catalog number with approximate cost will be provided.

1 July 1978

BILL OF MATERIALS									
PROJECT NO.		SEIP 032		LOCATION CODE		DRAWING LIST NO.			
DATE		PHID (APPROXIM)		UNIT IDENT CODE		SHEET		OF	
ITEM	NSN	AEI-NO	NOMENCLATURE	UNIT	QTY	REMARKS			
1	6145-00-112-8595	21551B	Cable TP 6 Cond., 20 AWG, 3 Pr - Solid	Pt	.07	S9IQ2			
2	5305-00-439-7949	21552C	Screw Mach PH 12-24 x 5/8	EA	.03	S9IT2			
3	5970-00-419-4291	11723H	Tape Elec Vinyl Plastic Blk 3/4" x 108 ft	EO	.87	S9CQ2			
4	6145-00-901-3870	21553D	Wire Elec Insul Blue Solid, 22 AWG Plastic Insul	FT	.01	S9IQ2			
5	6145-00-080-1128	21554E	Wire Elec Insul, Brown Solid 22 AWG, Plastic Insul	Pt	.01	S9IQ2			
6	6145-00-635-7977	21555F	Wire Elec Insul, Red Solid 22 AWG, Plastic Insul	Pt	.01	S9IQ2			
7	8010-00-297-0549	04089L	Paint Rommel Flat Gray	Qt	1.70	G-OJ2			
8	5940-00-143-4775	07503A	Terminal Lug MS25036-56 No. 10-12 AWG	EA	.03	S9CQ2			
9	6145-00-557-7301	03663Z	Cable TP 16 Pr 22 AWG	Pt	.33	S9IQ2			
10	6145-00-557-3848	03653A	Cable TP 30 Pr 22 AWG	Pt	.41	S9IQ2			
11	4020-00-231-5878	00028F	Twin Lioen 12 Ply, Spec MIL-T-2520, Type 1.	Lb	5.53	S9IJ2			
12	5940-00-056-9876	14869H	Wire Elec Frankel 2601-4-10 Insul Parallel Tape	EA	4.64	S9EQ2			
13	6145-00-184-5491	03520Z	Wire Elec Insul Blk	Pt	.04	S9IQ2			

USACC FORM 6-6  
(MAY 77)

Figure 5-1. Bill of Materials (sheet 1 of 3 sheets).



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SEIP 032

BILL OF MATERIALS									
PROJECT NO.		SEIP 032		LOCATION CODE		DRAWING LIST NO.			
DATE		UNIT IDENT CODE		SHEET		OF			
P/N/D (AUTONOM)		NOMENCLATURE		UNIT		QTY		REMARKS	
ITEM	NUM	AEL-NO							
14	5805-00-912-7713	05446A	Relay Rack 9 Ft High, 19 in Wide, AECO H-A60102-2	Ea					
15	3439-00-273-2536	00015D	Solder Tin Alloy, 60-40 Tin-Lead 1/8 Diameter	Lb				3.05	S96E2
16	9905-00-353-3869	07147L	Tag Cable Marker WECO SD4-218A	Pr				6.00	B1662
17			Converter 60-48 V dc, 25 amp, type SG-25B, Lorain electric power converter	Ea					
18	5805-00-914-6738	06489J	Priority Diversion Circuit H-75650-A Fig A39A AECO P/N DH-75650-708A (2 Ckts Per Unit)	Ea	2			200.00	B166P
19	5805-00-914-6636	05464L	Operator Flash & Recall Applique H-75650A Fig A37A AECO P/N DH-75650-706A (2 Ckts Per Unit)	Ea	2			100.00	B166P
20	5961-00-106-4995	21557H	Diode Part No. AECO FD-102906	Ea	6			.61	S9EQ2
21	5945-00-917-4980	21558W	Relay AECO Part No. 6T 23343C-11	Ea	2			17.42	S9EQ2
22	5305-00-699-2885	21559Z	Screw, AECO Part No. D760642A Round, Ext Washer Head, .164-32 in, x .281 in	EA	4			.02	S91T2
23	5970-00-536-0501	21560Z	Insulator AECO Part No. D44469A	Ea	2			.04	S9EQ2

USACC FORM 4-64

Figure 5-1. Bill of Materials (sheet 2 of 3 sheets).

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BILL OF MATERIALS							
PROJECT NO.		SEIP 032		LOCATION CODE		DRAWING LIST NO.	
DATE		BRID. (AUTONOM)		UNIT IDENT CODE		SHEET	
ITEM	NSN	AEL-NO	DESCRIPTION	UNIT	QTY	REMARKS	
24	NSN	20032A	Insulated Sleeving AECO P/N 0543040-B	Ft	6	.43 B16G2	
25	NSN	21561A	Resistor Fixed Composition, 1 Megohm 1/2 watt, 350 V, 5 Percent Tolerance, Mfr. Code RC20, P/N 01120	Ea	2	.13 S9EQ2	
26	6145-00-130-8077	20417B	Wire Electric Green/Solid 24 AWG	Ft		.02 S9IQ2	
27	6145-00-682-3400	03759H	Wire Electric Blue/Solid 22 AWG	Ft		.02 S9IQ2	
28	6145-00-990-1272	17194X	Cable, SMD, 6 Cond, 22 AWG, Plastic Insul & Cover	Ft		.06 S9IQ2	
29	5905-00-964-2696	21562B	Varistor AECO D284266M, Wire Wound	Ea	1	.68 S9EQ2	

USACC FORM 90-1

USACC FORM 90-6  
1 MAY 77

Figure 5-1. Bill of Materials (sheet 3 of 3 sheets).

SECTION 6. QUALITY ASSURANCE

6.1 GENERAL. The quality assurance (QA) criteria defined in chapter 5, CCR 702-1-2, will be applied to this project. The QA procedures in this section will be used to determine the acceptability of the installation and the functional performance as defined in sections 1 and 3.

6.2 INSPECTION RESPONSIBILITIES. The inspection responsibilities are to establish sufficient levels of quality control (QC) to monitor the installation effort and to delineate responsibilities for implementing the QA program and criteria.

6.2.1 The installation agency's QC responsibilities will be accomplished in accordance with CCR 702-1-2, CCTM 105-50-21, and this section. In addition the installation agency will accomplish the following:

- a. Perform QC evaluation using the standardized checklists as prescribed in CCR 702-1-2.
- b. Prepare QC report using the agency's authorized form.
- c. Provide test equipment listed in 7.3.
- d. Perform shakedown test of appendix A.
- e. Issue a statement of readiness to perform acceptance tests to the applicable USACEEIA-QA element in writing, 20 days before the completion of shakedown tests.
- f. Provide one installer to assist in the test and acceptance (TA) of the installation.
- g. Correct QC discrepancies and rework installation, if tests are rejected.

6.2.2 The USACEEIA-QA element responsibilities will be accomplished according to CCCR 702-3.

- a. Provide a test director to perform QA of the installation agency's QC program and conduct TA according to appendix B.
- b. Prepare completion documentation contained in section 8.
- c. Prepare and distribute final test report in accordance with CCCR 702-1.



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## 6.2.3 Operation and maintenance (O&amp;M) command responsibilities:

- a. Provide a dial central office (DCO) repairman to monitor and assist in the QA and TA effort.
- b. The DCO repairman will assist and coordinate the installation of temporary cross-connects for the test of section 7.
- c. Provide one AUTOVON test trunk and one technical control facility (TCF) circuit conditioning string for the test of section 7.

6.3 QUALITY ASSURANCE DOCUMENTATION. The installation QC will be documented with the appropriate QC forms. The TA will be documented with the test plan of section 7. The final QA and TA will be documented with the technical acceptance recommendation (TAR) of section 8.

6.4 QUALITY ASSURANCE PLAN. The inspection responsibilities assigned in 6.2 establishes an independent evaluation loop which monitors the QC, QA, and TA effort. The evaluation loop consists of the installation agency's QC, the USACEEIA-QA office test director's QA/TA. The acceptance of the installation is contingent upon satisfying the O&M command representative that the installation meets all of the EIP requirements.

## SECTION 7. TEST AND ACCEPTANCE

7.1 SCOPE. Perform shakedown tests to verify proper installation of equipment and acceptance tests to ascertain proper operation of the equipment will be conducted.

7.2 TEST CRITERIA. The tests of appendixes A and B shall be conducted and recorded on the test sheets. All failures shall be corrected, and if necessary, retesting of previous tests affected by the failures shall be accomplished.

7.3 TEST EQUIPMENT. The following test equipment or equivalents will be required to perform the shakedown and acceptance tests.

- a. Multimeter, AN/USM-223 (1 ea).
- b. Buzzer with test leads (1 ea).
- c. Insulated alligator clips (2 ea).

### 7.4 TEST PLAN ORGANIZATION.

7.4.1 The shakedown tests of appendix A will be conducted by the installation agency to verify that the equipment was installed properly and that the equipment is ready for acceptance tests. Test results and corrective action taken will be documented on the test sheets.

7.4.2 The acceptance tests of appendix B will be conducted to ascertain proper operation of the equipment. The O&M command representative should be present throughout the acceptance tests to verify the operability of the equipment.

## SECTION 8. COMPLETION CERTIFICATION

8.1 GENERAL. The completion document shall consist of the information indicated by the TAR (fig. 8-1). The information and documentation provided by these sheets may be expanded to meet the requirements of the specific project.

8.2 DISTRIBUTION. The distribution list for the TAR will be provided in the tasking document, QA test plan, or contractual document.

8.3 RECORD. Prescribed TAR items are as follows: (Record may be locally reproduced.)

8.3.1 Paragraph 1 (Project). Identify project.

8.3.2 Paragraph 2 (Facility). Identify facility.

8.3.3 Paragraph 3 (Location). Identify geographic location.

8.3.4 Paragraph 4 (Operating Agency). Identify organization.

8.3.5 Paragraph 5 (Engineering Agency). Identify organization.

8.3.6 Paragraph 6 (Installation Agency). Identify organization.

8.3.7 Paragraph 7 (Quality Assurance/Test Agency). Identify organization.

8.3.8 Paragraph 8 (Project Description). Provide brief description of the project purpose.

8.3.9 Paragraph 9 (Equipment Provided). This paragraph normally lists two parts: paragraph 9A, operational equipment installed, and paragraph 9B, test equipment successfully tested and test equipment successfully calibrated. All hardware listed is correlated to the project BOM item number, and quantities shown are for items successfully tested/calibrated only.

8.3.10 Paragraph 10 (Documentation Provided). This paragraph normally lists two parts: paragraph 10A, drawings provided to operator, and paragraph 10B, technical manuals provided to the operator. Drawings are listed in numerical sequence, with the title and sheet quantity identified for each. Technical manuals are listed by equipment BOM item in numerical sequence, with the equipment described and the manual quantity identified for each item.



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8.3.11 Paragraph 11 (Exceptions). Exceptions to project completion and to full facility operation are identified in detail in this paragraph. Each exception will be identified separately and categorized according to the agency, or 11A, B, C, or D, anticipated to be responsible for corrective action. This categorization constitutes the test director's recommendation and is not binding. The project manager retains tasking authority regarding resolution of all exceptions.

8.3.12 Paragraph 12 (Remarks). Comment by the QA/test, installation, and operating agencies or respective paragraphs 12A, B, or C is encouraged. In the event a representative of the engineering agency is at hand during execution of final documentation, comment from that source is also encouraged. Remarks should be confined to technical matters affecting the project. Laudatory comment relative to support received, work accomplished, etc., while commendable, should be addressed in separate correspondence. Standard statements to be entered on all TAR's by the QA/test agency are shown in this paragraph. Reference to other documentation, if required, should also be addressed in this paragraph.

8.3.13 Paragraph 13 (Certification). Signatures are affixed by installation, operating, and QA/test agency representatives to authenticate activity which transpired during the acceptance test phase and to verify that system status is as stated in the document. The certifications contained in or prescribed by this publication are essential to the conduct of the Government's business.

8.3.14 Paragraph 14 (Acceptance). The O&M commander, or his/her representative, indicates by his/her signature that the system described in the document is accepted for full operation, less exceptions noted, if any.

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TECHNICAL ACCEPTANCE RECORD

1. Project:

2. Facility:

3. Location:

4. Operating Agency:

5. Engineering Agency:

6. Installation Agency:

7. Quality Assurance/Test Agency:

Figure 8-1. Sample Technical Acceptance Record (sheet 1 of 14).

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9. Equipment Provided		A. Operational Equipment	
BOM			Qty
Item	Description	Part Number	On
No.			Rqr Site

Figure 8-1. Sample Technical Acceptance Record (sheet 2 of 14)



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9. Equipment Provided:		B. Test Equipment	
BOM Item No.	Description	Part Number	Qty On Rqr Site

Figure 8-1. Sample Technical Acceptance Record (sheet 3 of 14).

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10. Documentation Provided      A. Drawings

Drawing Number	Title	Sheet
-------------------	-------	-------

Figure 8-1. Sample Technical Acceptance Record (sheet 4 of 14).

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10. Documentation Provided:		B. Tech Manuals	
BOM			
Item	Description	Part Number	Tech
No.			Manual
			Qty
			On
			Rqr Site

Figure 8-1. Sample Technical Acceptance Record (sheet 5 of 14).



11. A. Exceptions For Which The Operating Agency Assumes  
Responsibility

---

Figure 8-1. Sample Technical Acceptance Record (sheet 6 of 14).

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11. B. Exceptions For Which The Installation Agency Assumes  
Responsibility

Figure 8-1. Sample Technical Acceptance Record (sheet 7 of 14).

11. C. Exceptions Requiring Resolution by the Engineering Agency:

Figure 8-1. Sample Technical Acceptance Record (sheet 8 of 14).

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11. D. Exceptions Requiring Resolution by the Project Manager:

Figure 8-1. Sample Technical Acceptance Record (sheet 9 of 14).



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## 12. Remarks:

---

A. QA/Test Agency

---

(1) This document signifies that the equipment identified in paragraph 9 is technically acceptable for operation. This document does not signify acceptance of the equipment by the O&M Command, nor does it serve to transfer accountability for property book purposes; both of these are actions which must be consummated by the Project Manager/O&M Commander.

(2) Paragraph 11 contains agreements by personnel involved in acceptance testing relative to Agency responsibility for correction of exceptions identified therein. Assignments will be adjusted if necessary and confirmed by the PM subsequent to distribution of this document.

(3) Disposition of excess project material is a USACSA function.

(4) One copy of each marked-up drawing listed at paragraph 10A, above, is provided to the Operating Command with execution of this document.

(5) All tech manuals listed at paragraph 10B, above, are provided to the Operating Command with execution of this document.

(6) One copy of each test data sheet, prepared during the installation shakedown test and during acceptance test, is provided to the Operating Command with execution of this document.

Figure 8-1. Sample Technical Acceptance Record (sheet 10 of 14).

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12. Remarks:

---

B. Installation Agency:

---

Figure 8-1. Sample Technical Acceptance Record (sheet 11 of 14).

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12. Remarks:

---

C. Operating Agency:

---

Figure 8-1. Sample Technical Acceptance Record (sheet 12 of 14).

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13. Certification: Acceptance test and quality assurance inspections are complete for this project -

Without exception \_\_\_\_\_. With exception cited para 11 \_\_\_\_\_.

INSTALLATION AGENCY REPRESENTATIVE

Printed: \_\_\_\_\_  
Signed: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Date: \_\_\_\_\_

OPERATING AGENCY REPRESENTATIVE

Printed: \_\_\_\_\_  
Signed: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Date: \_\_\_\_\_

QA/TEST AGENCY REPRESENTATIVE

Printed: \_\_\_\_\_  
Signed: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Date: \_\_\_\_\_

Figure 8-1. Sample Technical Acceptance Record (sheet 13 of 14).



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14. Acceptance: This project is accepted for full operation:

Without exception \_\_\_\_\_. With exception cited para 11 \_\_\_\_\_.

OPERATING COMMAND

Printed: \_\_\_\_\_

Signed: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Date: \_\_\_\_\_

Figure 8-1. Sample Technical Acceptance Record (sheet 14 of 14).

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APPENDIX A  
SHAKEDOWN TESTS

SITE \_\_\_\_\_

DATE \_\_\_\_\_

1. CONTINUITY TEST OF CABLES.

1.1 Objective. To ensure that no shorts, opens, or crosses exist in the newly installed cables.

1.2 Test equipment required.

- a. Buzzer with test leads.
- b. Multimeter, AN/USM-223.

1.3 Test. (NOTE: Do not attempt to buzz through equipment.)

- a. Using buzzer, check each wire installed except those with dc power.
- b. Wires shall be checked for shorts, opens, grounds, reversals, and split pairs.
- c. Using voltmeter, measure for proper dc voltage on power cables.

CABLE NUMBER

ACCEPT

REMARKS:

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2. FUSE AND ALARM TEST.

2.1 Objective. To ensure that all fuses and alarms are installed and operating properly.

2.2 Test.

a. Install a blown fuse in each new fuse position that services new equipment and check for activated visual and audible alarm.

b. Reset alarms and install proper fuse.

FUSE POSITION NUMBER

ACCEPT

REJECT

REMARKS:

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## APPENDIX B

### ACCEPTANCE TESTS

SITE \_\_\_\_\_

DATE \_\_\_\_\_

#### 1. FINAL QUALITY ASSURANCE.

1.1 Objective. To ensure that QC and shakedown tests have been performed.

1.2 Test equipment required. None.

1.3 Visual checks.

a. Review the installation agency's QC checklist and the QC reports to verify that QC was performed.

b. Spot check or, if necessary, inspect all items on the QC checklist to verify that the equipment was installed properly and drawings have been corrected.

c. Review results of shakedown test to verify that the required tests were performed and discrepancies were corrected.

#### 2. ACCEPTANCE TEST.

2.1 Objective. To ensure that the installed equipment will interface with the DCO and the AUTOVON switch to provide PNID.

2.2 Test equipment required. None.

2.3 Pretest.

a. The acceptance tests should be conducted during nonbusy hours.

b. Inform all concerned agencies of the times that the tests will be conducted.

c. Coordinate with the O&M command and other concerned agencies to obtain a fully conditioned AUTOVON trunk for testing.

d. Inform the applicable AUTOVON switch personnel to program the test trunk for PNID and request assistance in performing acceptance tests.



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e. Install temporary cross-connects to the test trunk.

f. Request the local operator to select the AUTOVON test trunk and place calls to the switch using routing, precedence levels, and preemption capabilities to ensure the PNID modification did not interfere with the AUTOVON outward dial capability.

2.4 Test. (NOTE: All of the following tests will be made through the AUTOVON test trunk.)

a. From AUTOVON switch:

(1) Place routine call to a test telephone in the DCO. When telephone rings, answer and hold short conversation to ensure that the circuit quality is equal to other AUTOVON trunks terminating in the DCO. Put hand set on-hook when call is completed.

(2) Place priority call to a test telephone in the DCO. When telephone rings, answer. Verify connection and leave hand set off-hook.

(3) Place priority call to the off-hook test telephone. Route the call to the operator immediately. Place handset on-hook.

(4) Place priority call to a test telephone in the DCS. When telephone rings, do not answer. Route the call to the operator after a minimum of five rings.

b. Repeat steps (1) through (4) above for higher precedences, and test incoming preemption capability of the AUTOVON switch.

c. When all tests are completed, remove the temporary cross-connects.

d. Repeat steps in 2.3a through 2.3f and 2.4a through 2.4c for all PNID modified AUTOVON trunks.

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AUTOVON PNID DATA SHEET

SITE \_\_\_\_\_

DATE \_\_\_\_\_

TEST  
PARAGRAPH

AUTOVON  
TRUNK NO.

ACCEPT

REJECT

REMARKS:

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SEIP 032

(CC-OPS)

FOR THE COMMANDER:

OFFICIAL:

Billy J. THRASHER  
Colonel, GS  
Chief of Staff

  
J. HOSTON  
LTC. AGC  
Adjutant General

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- 10 - CCC-CED-SEP
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- 4 - CCC-TED
- 5 - USACEIN Bn
- 10 - USACEEIA-CONUS, ATTN: CCCN-TR, Fort Ritchie, MD 21719
- 10 - USACEEIA-EUR, APO New York 09056
- 10 - USACEEIA-PAC, Fort Shafter, HI 96858
- 10 - US Army Signal School, ATTN: ATSN-CD-MS, Fort Gordon, GA 31905
- 2 - US Army Materiel Development and Readiness Command, ATTN: CCN-PI-P, Washington, DC 20315
- 5 - 5th Signal Command, APO New York 09056
- 5 - 7th Signal Command, Fort Ritchie, MD 21719
- 2 - US Army Communications Command, ATTN: CC-OPS-SM, Fort Huachuca, AZ 85613
- 2 - US Army Training and Doctrine Command, ATTN: ATCE, Fort Monroe, VA 23351
- 2 - US Army Forces Command, ATTN: AFCE, Fort McPherson, GA 30330
- 2 - Defense Communications Agency, Technical Library Center, Code 205, Washington, DC 20305
- 12 - Defense Documentation Center, Cameron Station, Alexandria, VA 22314
- 2 - US Air Force, ATTN: USAFSAAS/TE00A, Keesler AFB, MS 39534
- 2 - Air Force Communications Service, ATTN: 1842 EEG/EEM, Scott AFB, IL
- 2 - Naval Electronic Systems Command (NAVELEX), Code 51032, Washington, DC 20315

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Comments on SEIP \_\_\_\_ (please give number)

SEIP MGT Officer  
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